

In Figs. 11 and 12 we propose to change reference numeral 118 to reference numeral 181. In Fig. 18, we propose to change reference numeral 61 to read 161. And in Fig. 27 we propose to change reference numeral 243 to read 244. These changes are being made to address the concerns raised by the Examiner. We ask the Examiner to approve these changes.

REMARKS

The Examiner rejected claims 1-19, 38, 39, 42, 43, 46, 47, and 50-53 under 35 U.S.C. §112, first and second paragraphs, as supposedly containing subject matter which was not described in the specification. More specifically, the Examiner described the problem as follows:

For example, p. 8, ll. 24-30 describe that all points in the first region 116a are elliptic while all points in the second region 116b are hyperbolic. This is confusing. What frame of reference is Applicant using to define what is "elliptic" and "hyperbolic"? Moreover, how is a point, i.e., an imaginary "dot" on a surface, considered "elliptic" or "hyperbolic"? A point by definition does not define a two or three dimensional surface implied by the terms. Furthermore, taking into consideration the depiction in Fig. 1 of the application, what makes the first region 116a "elliptic" and the second region 116b "hyperbolic"? Depending on an observer's view, the opposite could be said of the two regions. Thus, clarification of the description is requested.

The Examiner's confusion may be due to his overlooking the explanation that appears on page 1 of the specification. The explanation found on page 1 is quote in its entirety below:

As explained in "VNR Concise Encyclopedia of Mathematics" 2nd Edition (ISBN 0-442-20590-2) at pages 568 and 569, if the Gaussian curvature of a curved surface at a point P has the value $k(P)$, three cases may be distinguished:

1. $k(P) > 0$, when the point P is called elliptic;
2. $k(P) < 0$, when the point P is called hyperbolic; and
3. $k(P) = 0$, when the point P is called parabolic.

This formal division has a close connection with the shape of the surface. For example, on a torus, the points towards the inside are hyperbolic and the points towards the outside are elliptic. These two sets of points are separated from one another by two circles which consist of parabolic points.

In this specification, for convenience a surface region containing only elliptic points will be called an elliptic surface region, a surface region containing only hyperbolic points will be called a hyperbolic surface region and a surface region containing only parabolic points will be called a parabolic surface region.

Conventional shaving foils for oscillatory dry shavers almost invariably provide only parabolic surfaces. [emphasis added] (Page 1 lines 7-35).

Clearly, surface regions can have a curvature. And thus, according to the definitions provided above, each point within a surface region that has a Gaussian curvature of a particular value, e.g. $k(P) > 0$, is defined to be a point of a particular type, in the case of the example an "elliptic point". The point itself does not have any actual curvature, it simply is part of a surface region that has a particular type of curvature and thus is characterized by that curvature. In view of the above definitions, we submit that a person of ordinary skill in the art would readily recognize the meaning of an elliptic point, a hyperbolic point and a parabolic point.

Also, the Examiner argues that the curvature of a surface only has meaning if the observer's view is specified. We note, however, that an observer's view is implied in the claims. For example, claim 1 recites a shaving cutter with a skin engaging surface, clearly referring to the outer surface of the cutter that comes into contact with the skin. Thus, the implied observer's view is from outside of the cutter, i.e., the view from which the outer skin engaging surface can be observed. Indeed, it would be counterintuitive to characterize the curvature of the outer skin engaging surface relative to the inside of the cutter. Moreover, the description found within the specification is completely consistent with and supports the notion that when describing the curvature of an outer surface of an object (e.g. a cutter) the frame of reference is also from the outside of the object (and not from the inside of the object).

The Examiner incorrectly observed that neither of reference numerals 41 and 42 was described in the specification. In fact, reference numeral 41 is found in paragraph 5.2 on page 22. We have also added a description of stirrer 42 to that same paragraph.

The Examiner objected to claim 16 as "vague and indefinite." More specifically, he argues:

How is a "region", which is assumed to be three dimensional in light of the disclosed invention, defined as a two dimensional curve? What is the claim referring to?

In response to the Examiner's query, we note the following two points. First, the surface is not defined as a two dimensional curve but rather it is characterized by a curved line. Second, that curved line is defined as the intersection between a cross-sectional plane and the curved surface.

It is well known that such an intersection of a plane with a curved surface produces a curved line in the plane. Thus, we believe that the claim is clear and definite.

The Examiner also objects to claim 39 as vague and indefinite. More specifically, he argues:

- What is the difference, if any, between the "arcuate longitudinal centre line" and the "parabolic" of claim 11 since, as best understood of the invention, the "parabolic" of claim 11 appears to be setting forth the center line 116 according to the specification. If not, then there appears to be a double inclusion problem in the claim.

Before addressing the Examiner's confusion, we believe that he meant to refer to "center line 117" rather than "center line 116" since the reference numeral 116 refers to a surface and not to a line, according to the specification (see page 8, lines 24-25). With that correction, we note that the "arcuate longitudinal centre line" is the line along which the first and second regions merge. It is illustrated by line 117 in Fig. 1. The word "parabolic", on the other hand, refers to the possible shape of the first and second regions (i.e., in this case it characterizes a surface curvature not a line curvature). Based on this, we believe that the claim is clear and definite.

The Examiner rejected claims 1-17 and 50-53 under 35 U.S.C. §102(b) as anticipated by DE M9004739.7 to Pranjko. We note, however, that the Pranjko reference appears to be a design patent that includes absolutely no written description whatsoever of the illustrated object or of how to make it. It is no more than a fanciful representation of the shape of an object that is entitled "Rasierapparat-Scherblatt." For a reference such as Pranjko to constitute valid anticipatory art, it must place the invention in the hands of the public. This has been understood by the courts to mean:

We think it is sound law, consistent with public policy underlying our patent law, that before any publication can amount to a statutory bar to the grant of a patent, its disclosure must be such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention. Application of LeGrice, 301 F.2d 929 (CCPA 1962).

The Pranjko reference, being totally silent as to any features that are shown in the drawings and being totally silent regarding how to manufacture the object, does not meet this test and thus is not a valid anticipatory reference. There is no description about what the various features are on the illustrated object. For all one knows, the object could be nothing more than a solid block of

5 plastic with a textured surface region. The reference does not characterize the textured region as a foil and there is no basis for concluding that it must be a foil as opposed to simply a textured region. There is also no description regarding how to manufacture the elements of the object. Assuming for the sake of argument that the textured region represents a foil, there is no
97 description regarding how to make a foil having the illustrated geometry. Thus, for at least these reasons, we submit that the Pranjko reference fails as an anticipatory reference because it does not clearly place the present invention into the hands of the public as is required for such a reference.

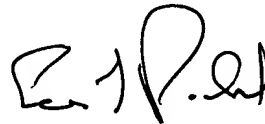
Attached is a marked-up version of the changes being made by the current amendment.

For the reasons stated above, we ask the Examiner to allow all of the claims. Enclosed is a Petition for Two Month Extension of Time with the required fee of \$390. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: _____

April 23, 2001



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Version with markings to show changes made

In the specification:

Paragraph beginning at page 9, line 10 has been amended as follows;

The top surface 116 will be perforated with non-elongated apertures of the size conventionally used in shaver foils, e.g. 400-800 mm diameter. The concentric concave and convex side skirts 114 and 115 may also be provided with hair receiving apertures of the conventional size. However, they may also be provided with elongate hair capture slots 121 for improved capture of long hairs. Such elongate slots may typically have dimensions 2000 mm(maximum) x 200 mm(minimum). The foil is manufactured by electroforming in one piece and is open at its base. By virtue of its shape, the foil has an arcuate longitudinal centre line, like a banana, and may be a sector of a torroid.

Paragraph beginning at page 10, line 32 has been amended as follows:

Figs. 10 to 22 show a modified embodiment of the invention including a straight shaving foil 100 having a parabolic shaving surface and closed elliptic end cheeks 101, 102. Fig. 11 shows a longitudinal sectional view taken along line A - A of Fig. 10. The view of Fig. 11 shows the undercutter [118] 181, which is constructed in a substantially conventional way. Fig. 12 is a cross-section taken along line B - B of Fig. 11.

Paragraph beginning at page 23, line 1 has been amended as follows:

Fig. 27 shows the mask 242 with its foil aperture pattern [243] 244. Fig. 28 shows the polished mandrel 261 coated with photoresist ready to receive the mask 242.

Paragraph beginning at page 22, line 19, has been amended as follows:

5.2 As shown in Fig. 32, develop the mandrel pattern in "Developer"TM 41 while stirring with a stirrer 42 and at 20-50°C, preferably 26°C until the aperture pattern is just visible; note the time taken and continue the immersion for the same period.

In the claims:

Claims 1, 3, 5, 6, 8, 10, and 11 have been amended as follows:

1. (Once Amended) A shaving cutter [(111)] comprising a skin-engaging surface [(116)] having both a convex elliptic region [(116a)] and a hyperbolic region [(116b)].
3. (Once Amended) A shaving cutter according to claim 2 wherein the elliptic region merges with the hyperbolic region along a parabolic transition region [(117)].
5. (Twice Amended) A shaving cutter according to claim 1 further comprising a concave parabolic skirt region [(114)] that depends from the hyperbolic region.
6. (Twice Amended) A shaving cutter according to claim 5 further comprising a convex parabolic skirt region [(115)] that depends from the elliptic region.
8. (Twice Amended) A shaving cutter according to [any one of] claim 5 wherein each skirt region is perforate.
10. (Twice Amended) A shaving cutter according to claim 1 further comprising a pair of convex elliptic end cheeks [(112, 113)] each merging smoothly with the elliptic and hyperbolic regions.
11. (Twice Amended) A shaving cutter comprising a skin-engaging surface having a convex first region, said convex first region having a shape that is selected from the group consisting of parabolic and elliptic, a second region having a shape that is selected from the group consisting of parabolic [or] and hyperbolic, and first and second convex elliptic end zones merging smoothly with the first and second regions.

Applicant : Charles C. Packham et al.
Serial No. : 09/422,758
Filed : October 21, 1999
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Attorney's Docket No.: 11223-002001 / BAG 80043-
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Please add the following new claims:

54. A shaving cutter according to claim 10 wherein the skin engaging surface and the pair of end cheeks are integrally formed.

55. A shaving cutter according to claim 10 wherein the skin engaging surface and the pair of end cheeks are integrally formed from a common material.

56. A shaving cutter according to claim 55 wherein the common material is a metal.

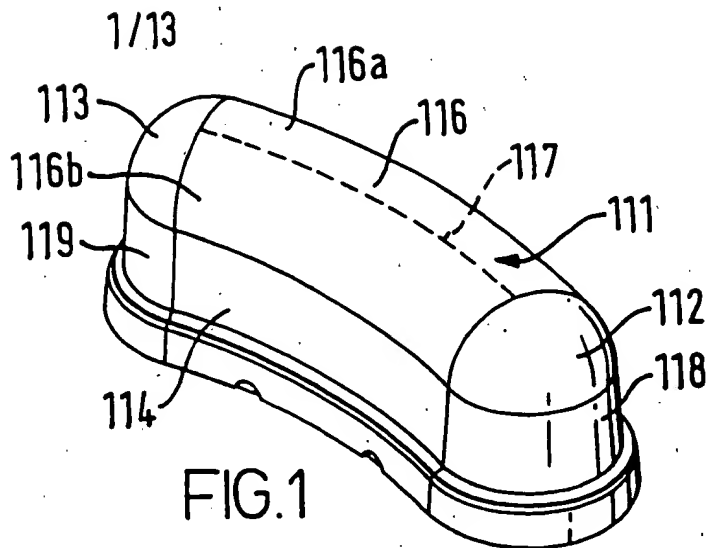


FIG. 1

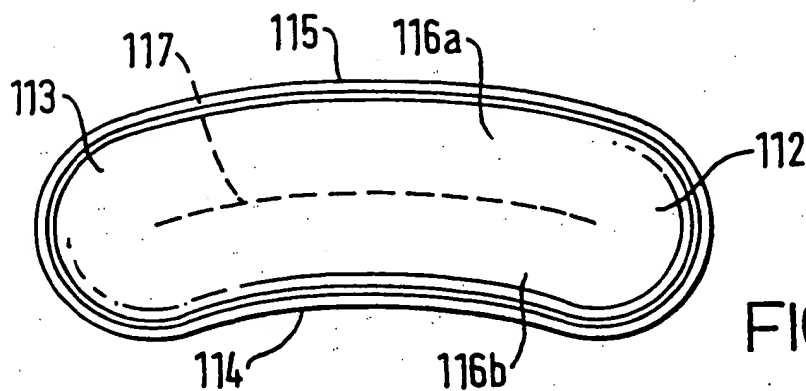


FIG. 2

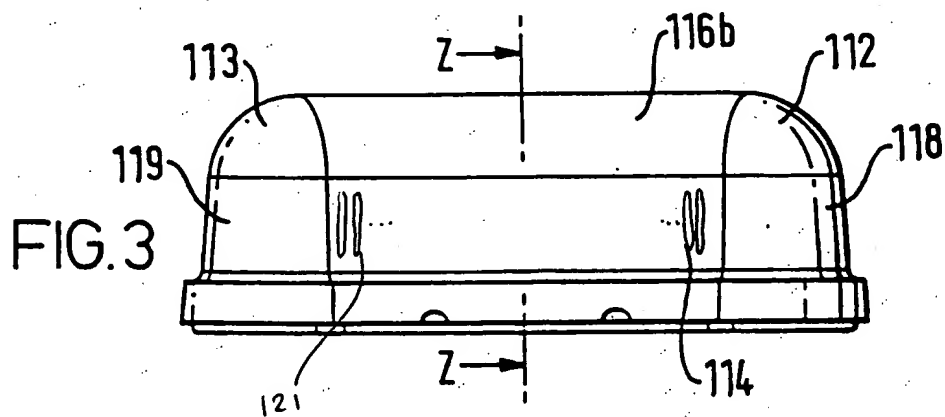


FIG. 3

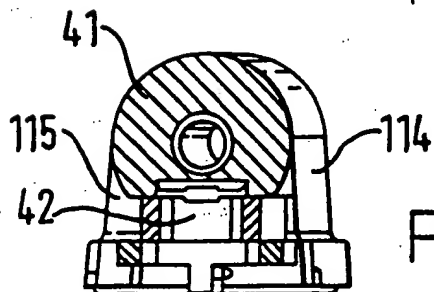
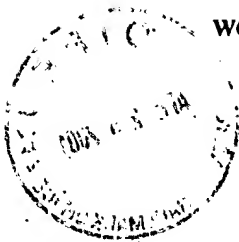


FIG. 4

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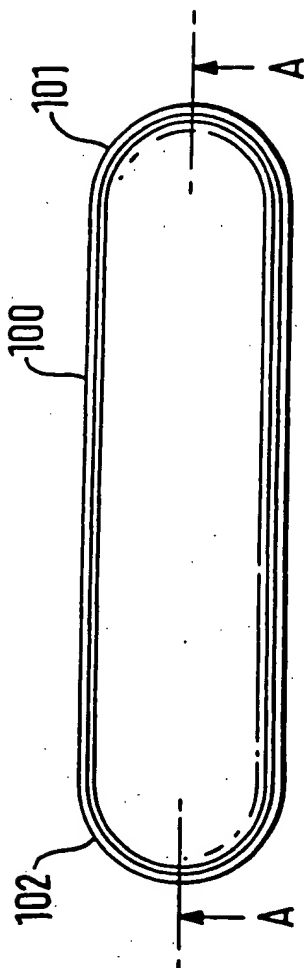


FIG. 10

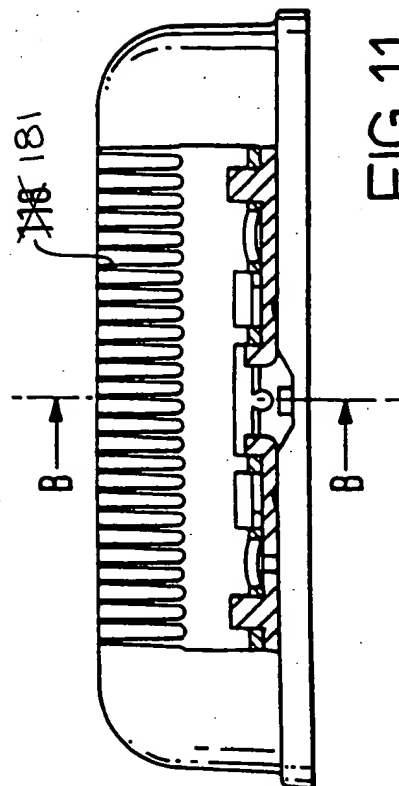


FIG. 11

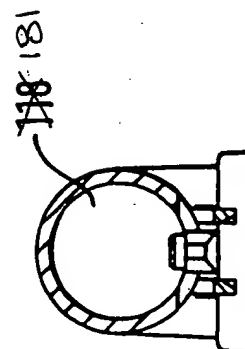


FIG. 12

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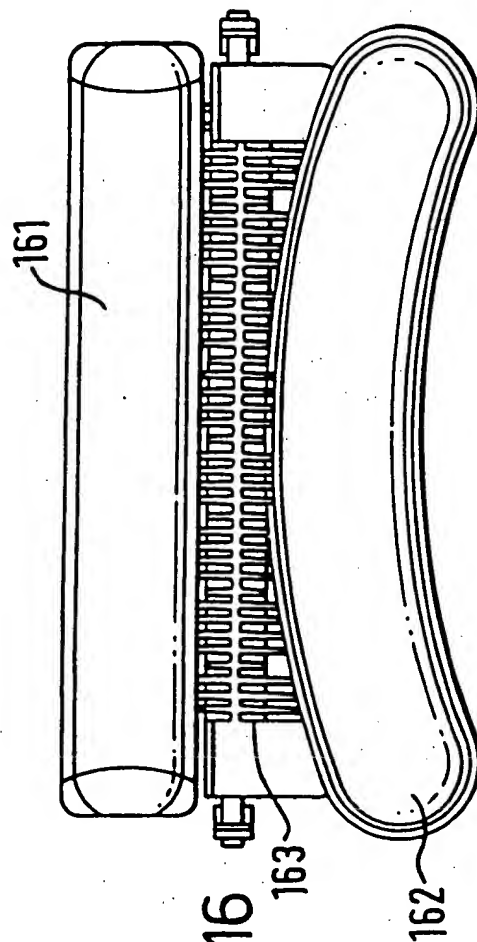


FIG. 16

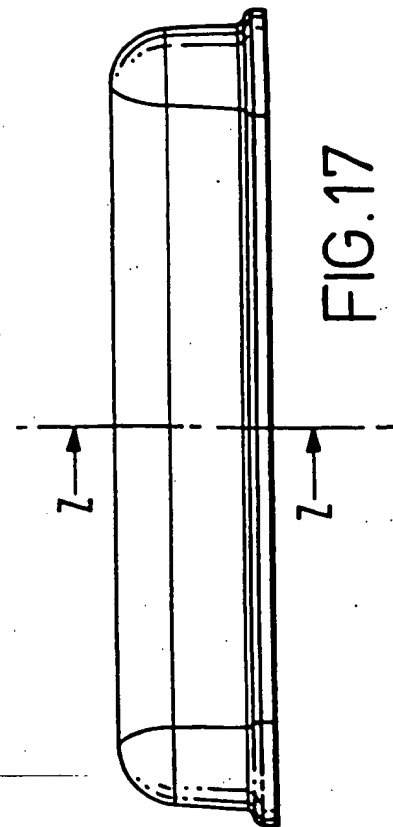


FIG. 17

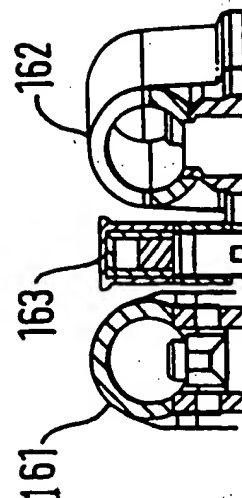


FIG. 18

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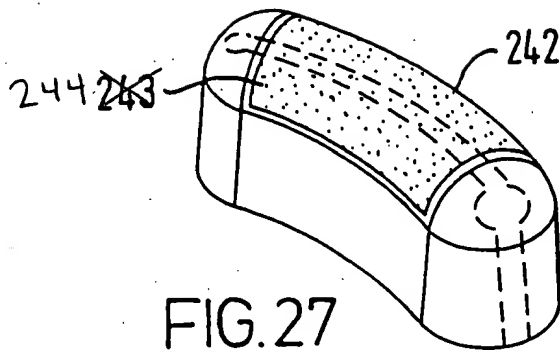


FIG. 27

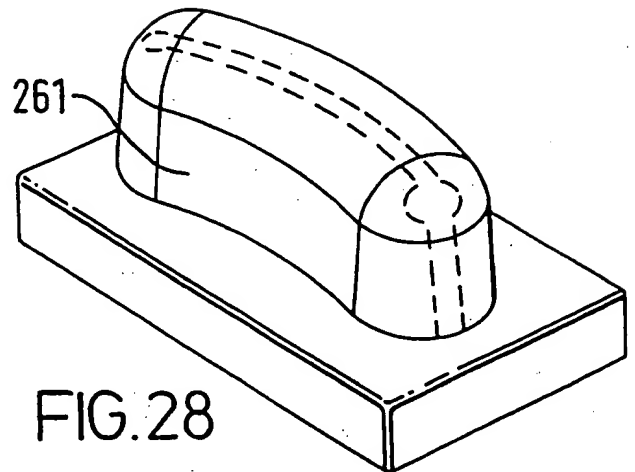


FIG. 28

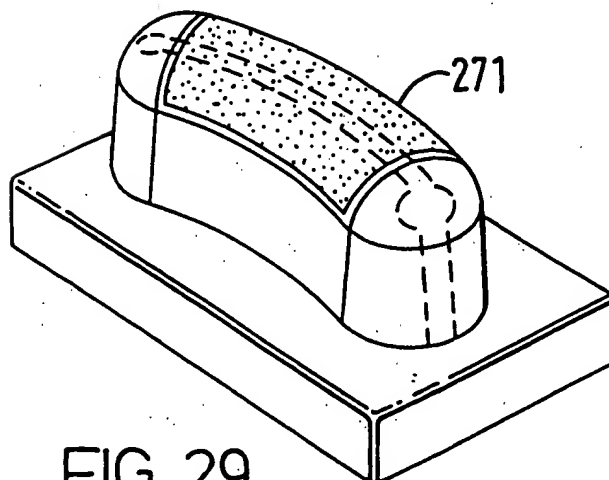


FIG. 29